

REMARKS

Claims 1-29 are pending in the application.

Claims 1, 2, 5, 6, 8, 9, 11, 12, 14, 15, and 17-29 have been rejected.

Claims 3, 4, 13, and 16 were objected to as depending from rejected base claims.

Claim 12 has been amended to correct minor informalities.

The specification has been amended, as indicated above, to correct minor informalities.

No new matter has been added.

Reconsideration of the Claims is respectfully requested.

1. Claim Objection

Claim 12 was objected to because the claim depends on itself. Appropriate correction has been made.

2. Rejection under 35 U.S.C. Section 102

Claims 1, 2, 5, 6, 8, 9, 11, 12, 14, 15, and 17-29 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,689,499 to Hullett et al. ("Hullett").

For establishing anticipation, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. . . . The identical invention must be shown in as complete detail as is contained in the . . . claim." MPEP 2131 at p. 2100-67 (Rev. 5, August 2006) (citations omitted).

a. The network buffer overflow system of Hullett does not provide a basis for anticipation

Hullett relates to a "method for supporting a plurality of virtual channel connections within a single virtual path *in a digital communications network* operating in the *Asynchronous Transfer Mode (ATM)* [includes] detecting *whether buffer overflow* is threatened by the storage of further cells for transmission on [a] virtual path" (Hullett, claim 1) (emphasis added).

To avoid buffer overflow/overload, Hullett seeks to accommodate the congestion when "data bursts occur on several converging streams to an input of the [Buffer & Virtual Path Rate Server] 56 . . . [by discarding] whole newly arriving frames . . . rather than individual cells originating from different frames as would be the case with normal ATM cell multiplexing." (Hullett 8:45-54). "Frame discarding on a cell by cell basis ceases when the buffer occupancy

falls below the selected threshold level.” (Hullett 8:54-56). That is, Hullett seeks to accommodate congestion by disposing of incoming data.

b. The communications network system of Hullett operates on a “virtual path” basis, not a virtual channel basis within a host device

In the context of network communications on the ATM protocol, Hullett recites that “linked lists used to read data buffer 66 into bandwidth resourced output [Virtual Paths].” (Hullett 10:59). For the communications network operating in an ATM mode, the “[Schedule & Read Controller] 70 [of Hullett] achieves [a scheduled rate of data flow on each Virtual Path to satisfy traffic parameters] by *virtual scheduling* and implemented by linked lists used to *read* data buffer 66 into bandwidth resourced output VPs.” (Hullett 10:57-60). The linked list of Hullett are simply appended with incoming cell storage information, based upon a Virtual Path Identifier basis. (*see* Hullett 12:6-11). This, however, as understood, relates only to those cells that have not been rejected due to “occupancy of the buffer 66” tending towards overload conditions. (*see* Hullett Fig. 9; Hullett 9:11-15).

Hullett distinguishes a virtual path from a virtual channel. In networks operating in an ATM mode, the “ATM layer sits immediately above the physical or transmission layer, and has two hierarchical sub-layers. These are the lower Virtual Path (VP) sub-layer and the higher Virtual Channel (VC) sub-layer. . . . The Virtual Channels are associated by a common unique identifier called the Virtual Path Identifier (VPI) which is also carried in the cell header. Virtual Channels are thus transported within *Virtual Paths which are used to aggregate the Virtual Channels.*” (Hullett 1:36-47).

Further, Hullett does not provide data routing via virtual channels, but by virtual paths, which in turn aggregate virtual channels. For example, Hullett does not recite an instance upon which the ATM cell has an input virtual channel not identified therewith an output virtual channel.

c. The network buffer overflow system of Hullett does not recite, for example, operations regarding an “input virtual channel,” nor a “an input virtual channel linked list”

Distinguishable from Hullett’s communication network operating in an ATM mode, Applicant’s Specification at page 3 notes that “servicing a *peripheral bus interconnection* requires significant processing and storage resources. . . . [Incoming] data may have been transmitted from a variety of source devices with data coming from the variety of source devices being interleaved and out of order. The receive port must organize and order the incoming data

prior to routing the data to a destination resource within the serviced device or to a transmit port that couples to the peripheral bus fabric. The process of receiving, storing, organizing, and processing the incoming data is a daunting one that requires significant memory for data buffering and significant resources for processing the data to organize it and to determine an intended destination.” (Specification at Page 3, *ll.* 3-16). In other words, Hullett’s resolution to too much data on its ATM virtual pathway (in contrast to a virtual channel) is to simply discard data until the virtual pathway volume becomes manageable.

Applicant’s Specification, at page 16, further recites that in contrast to Hullett, a “virtual channel may correspond to a particular physical entity, such as processing units 42-44, cache memory 46 and/or memory controller 48, and/or to a logical entity such as a particular algorithm being executed by one or more of the processing units 42-44, particular memory locations within cache memory 46 and/or particular memory locations within system memory accessible via the memory controller 48. In addition, one or more virtual channels may correspond to data packets received from downstream or upstream nodes that require forwarding. Accordingly, each multiple processor device supports a plurality of virtual channels. The data of the virtual channels, which is illustrated as data virtual channel #1 (VC#1), data virtual channel #2 (VC#2) through data virtual channel #n (VC#n) may have a generic format. The generic format may be 8-byte data words or 16-byte data words that correspond to a proprietary protocol, ATM cells, IP packets, TCP/IP packets, other packet switched protocols and/or circuit switched protocols.” (Specification at p. 16, *ll.* 29-32 through p. 17, *ll.* 1-9).

In kind, Applicant’s Independent Claim 1 recites, *inter alia*, a “method for routing data *within a host device* comprising: receiving a data block at a receiver of the host device . . . *updating an input virtual channel linked list corresponding to the input virtual channel to include the data block*; determining an output virtual channel for the data block; *transferring the data block from the input virtual channel linked list of the receiver buffer to a destination within the host device via the output virtual channel*; and *updating the input virtual channel linked list to remove the data block.*”

Applicant’s Independent Claim 11 recites, *inter alia*, a “method for routing data *within a host device* comprising: . . . when the input virtual channel has identified therewith an output virtual channel *updating an output virtual channel linked list corresponding to the output virtual channel to include the data block*; and when the input virtual channel *has not identified therewith an*

output virtual channel: updating an input virtual channel linked list corresponding to the input virtual channel to include the data block; *processing the data block to determine an output virtual channel* for the data block; updating an output virtual channel linked list corresponding to the output virtual channel to include the data block; and updating the input virtual channel linked list to remove the data block.” (emphasis added).

Applicant’s Claim 20 recites, *inter alia*, a “received *data processing and storage system* comprising: . . . a routing module that determines an output virtual channel for data blocks based upon their respective input virtual channels; a receiver buffer operable to instantiate an input virtual channel linked list for storing data blocks *on an input virtual channel basis* and to instantiate *a free list that identifies free data locations*; a linked list control module operably coupled to the receiver buffer; input virtual channel linked list registers operably coupled to the linked list control module; and *free linked list registers* operably coupled to the linked list control module.” (emphasis added).

In view of the above, Applicant respectfully submits that the communications network operating in the ATM mode of Hullett does not set forth “each and every element as set forth in [Applicant’s claims].”

3. Rejection under 35 U.S.C. Section 103

Claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hullett et al. in view of U.S Patent No. 5,555,244 to Gupta et al. (“Gupta”).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. MPEP § 2142, p. 2100-125 (Rev. 5, August 2006) (citations omitted).

First, Applicant respectfully submits that as Hullett does not set forth the elements of a base claim, the combination of Hullett with Gupta similarly does not teach or suggest all of Applicant’s claim limitations.

Second, Applicant respectfully submits that there is no suggestion or motivation in the cited references to achieve Applicant's claimed invention.

Gupta relates to a providing broadband networks "to provide interactive multimedia services which cannot be provided by existing communications networks." (Gupta 1:11-15). In this regard, Gupta recites a "Scalable Multimedia Network (SMN) providing integrated networking of data, voice, video and image services over a variety of access facilities including metallic loops, fiber/coax and digital fiber. . . ." (Gupta 1:38-41).

Applicant respectfully submits the correlation seems unclear between the "mapping" as recited in Applicant's Claim 10 and the cited reference of Gupta. As set out in Applicant's Specification at page 29, that "Mapping of incoming data to [Input Virtual Channels] and mapping IVCs to [Output Virtual Channels] is performed based upon header information, protocol information, source identifier/address information, and destination identifier/address information, among other information extracted from the incoming data blocks." (Specification at p. 23, lines 29-32).

In contrast, interface system of Gupta recites a "channel unit has a multicast table which identifies the multicast group number to Port/VCI [Virtual Circuit Identifier] *mapping for packet traffic* and the multicast group number to Port mapping for TDM traffic." (Gupta 13:64-67; *see also* Gupta 23:9-11).

Accordingly, Applicant respectfully submits that there has not been a *prima facie* showing that substantiates the rejection of Applicant's claimed invention. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the overflow buffer system of Hullett with the interface system of Gupta to achieve Applicant's claimed invention as set out in dependent claim 10.

4. Allowable Subject Matter

Applicant notes with appreciation the indication of allowability to Claims 3, 4, 7, 14 and 16, which would be allowable if rewritten in independent form.

5. Conclusion

As a result of the foregoing, the Applicant respectfully submits that claims 1-29 in the Application are in condition for allowance, and respectfully requests an early allowance of such Claims.

If any issues arise, or if the Examiner has any suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at ksmith@texaspatents.com.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Garlick Harrison & Markison Deposit Account No. 50-2126.

Respectfully submitted,

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